

REMARKS

This Response is submitted in reply to the Office Action dated November 10, 2009, and in conjunction with the enclosed Request for Continued Examination. Claims 14-25 are currently pending. Claims 14 and 25 are in independent form. No claims are being amended by way of this response. Favorable reconsideration is respectfully requested. Please charge deposit account 02-1818 for all fees due in connection with this Response and the enclosed Request for Continued Examination.

The Office Action rejected claims 14 and 25 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,968,309 to Makinen et al. ("Makinen") in view of U.S. Patent No. 6,721,707 to Chu et al. ("Chu") and further in view of U.S. Patent No. 6,188,980 to Thyssen ("Thyssen"). Applicants respectfully disagree with, and traverse, such rejections.

Independent claim 14 recites, among other elements, "determining if the error concealment was performed by evaluating the data received." Similarly, independent claim 25 recites, among other elements, "determining if the error concealment was performed by evaluating and statistically analyzing the received data."

Makinen, *Chu*, and *Thyssen*, alone and in combination, fail to teach the foregoing claimed elements for at least the following reasons. The Office action concedes that *Makinen* and *Chu* fail to teach this feature (page 9). *Thyssen* also fails to teach this feature. *Thyssen* merely teaches a method of encoding or decoding that uses line spectral frequency concealment. Encoding or decoding a signal using line spectral frequency concealment is not "determining if the error concealment was performed by evaluating the data received" as currently claimed.

The Examiner provides a Response to Arguments in the Office action at page 2 through 5. However, Applicants respectfully submit that the Examiner's arguments are misplaced, as *Thyssen* does not disclose, teach, or suggest "the comparison of energy levels at previous and current frames in a signal" for line spectral frequencies, as argued on page 3 of the Office action. The Examiner goes on to state that "the comparison of spectral energy is a solution to determine if error concealment has been

performed,” however, as explained below, this statement is clearly incorrect. Office action, page 3.

The encoding process disclosed in *Thyssen* includes various parameters that are encoded and transmitted for each frame. *Thyssen*, col. 9, line 31 through col. 10, line 6. The various parameters each have a certain number of bits allocated for each 20 ms frame, including the line spectral frequency (“LSF”) coefficients which provide 21 bits of data, pitch lag (adaptive codebook) values which provide 8 bits of data, gain values which provide 12 bits of data, and innovation codebook values which provide 39 bits of data, thus totaling 80 bits in each 20 ms frame. *Thyssen*, col. 40, line 66 through col. 41, line 12.

The encoder performs a linear predictive analysis using linear predictive coding to generate the LSF coefficients. *Thyssen*, col. 9, lines 41-44, col. 42, lines 1-7, Figs. 2 and 8, blocks 239 and 811. *Thyssen*, col. 9, lines 41-44, Fig. 2, block 239. The LSF coefficients are ordered in ascending order for stable filtering. *Thyssen*, col. 42, lines 10-11. If the LSF coefficients are out of ascending order, or “flipped,” (see blocks 819, 827, and 835) then the encoder puts the LSF coefficients back into the correct order (see block 839), or performs a frame erasure (see block 823) or an LSF concealment (see block 831). *Thyssen*, col. 42, lines 11-19, Fig. 8. These determinations of whether a certain number of LSF coefficients are flipped do not relate to whether error concealment has been performed, but rather, dictate whether an LSF concealment should occur. *Thyssen*, col. 42, line 1 through col. 44, line 5, Figs. 8, 9, and 10. As noted in *Thyssen*, LSF concealment may be carried out at the encoder or decoder, however, the process of determining whether the LSF coefficients are flipped, and then performing LSF concealment is the same for both the encoder and the decoder. *Thyssen*, col. 42, line 46 through col. 43, line 16, Figs. 9 and 10.

As further explained below, the determinations of whether LSF coefficients are flipped are not conducted by “the comparison of spectral energy is a solution to determine if error concealment has been performed” as argued by the Examiner. Office action, page 3. Rather, the determinations based on the comparison of spectral

energy, which the Examiner relies on for the current obviousness rejection, relate to determining the pitch lag for a frame instead of LSF coefficient encoding or decoding.

It should be appreciated that the LSF coefficients and the pitch lag are separate parameters, as evidenced by the fact that the LSF coefficients provide 21 bits of data to the frame and the pitch lag values provide 8 bits of data to the frame. *Thyssen*, col. 41, lines 1-12.

The pitch lag is determined based on the weighted speech signal by first determining a prediction of the pitch lag, and second, determining a normalized spectrum difference between the LSFs of the current and previous frame. *Thyssen*, col. 10, lines 4-6, col. 13, line 64 through col. 15, line 5, Fig. 2, block 241. Clearly, and contrary to the Examiner's arguments, the LSF coefficients are used to determine the pitch lag as opposed to determining whether LSF concealment has been performed. *Thyssen*, col. 14, lines 56-60.

Accordingly, *Thyssen* merely discloses a method of encoding that that uses LSF concealment of LSF coefficient values that are flipped. Specifically, *Thyssen* discloses determining the pitch lag value for a frame and determining the LSF coefficients for the frame, and then determining whether any LSF coefficients are flipped, and if so, an LSF concealment may occur. However, *Thyssen* does not disclose, teach, or suggest determining if error concealment has been performed by evaluating received data. Accordingly, *Thyssen* clearly does not disclose, teach, or suggest using a comparison of spectral energy to determine if error concealment has been performed. As admitted by the Examiner, *Makinen* in view of *Chu* fails to teach determining if error concealment was performed. Office action, page 9. Therefore, *Thyssen*, alone or in combination with *Makinen* and/or *Chu* does not disclose, teach, or suggest "determining if the error concealment was performed by evaluating the data received" as recited in claim 14 or "determining if the error concealment was performed by evaluating and statistically analyzing the received data" as recited in claim 25.

Each of the other pending claims depends directly or indirectly from independent claim 14. Therefore, for the reasons provided above, Applicants submit that all of the pending claims are in condition for allowance.


An earnest endeavor has been made to place this application in condition for formal allowance, and in the absence of more pertinent art such action is courteously solicited. If the Examiner has any questions regarding this Response, Applicants respectfully request that the Examiner contact the undersigned.

The Commissioner is hereby authorized to charge deposit account 02-1818 for any fees which are due and owing.

Respectfully submitted,

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